HIGH ELEVATION MAFIC GLADE

Concept: High Elevation Mafic Glades are very rare glade communities of high elevation amphibolite or hornblende gneiss outcrops. They have patchy shallow soils that support a mosaic of grass and shrub vegetation alternating with bare rock and lichen cover.

Distinguishing Features: High Elevation Mafic Glades are distinguished by smooth, unfractured mafic bedrock with irregular shallow soil cover. They may be steep or nearly flat. They have a characteristic species composition that includes *Schizachyrium scoparium, Helianthemum bicknellii, Ionactis linariifolia (= Aster linariifolius), Coreopsis major, Danthonia spicata, Cladonia* spp., and *Cladina* spp. The Little Bluestem Basic Subtype of High Elevation Rocky Summit similarly has abundant *Schizachyrium scoparium* and *Coreopsis major* but lacks the other species. It has more fractured rock but has more bare rock with less plant cover.

Synonyms: *(Kalmia latifolia, Physocarpus opulifolius) / Schizachyrium scoparium - Thalictrum revolutum - Sibbaldiopsis tridentata* Shrub Herbaceous Vegetation (CEGL004238).
Ecological Systems: Southern and Central Appalachian Mafic Glade and Barrens (CES202.348).

Sites: High Elevation Mafic Glades occur on relatively unfractured outcrops of mafic bedrock that have substantial shallow soil cover. They occur at elevations above 4,000 feet.

Soils: Soils consist of shallow mats of organic matter and accumulated mineral material lying on bedrock.

Hydrology: High Elevation Mafic Glades are generally dry because of shallow soil. However, local seepage may be present on the edges, and water may be trapped on the rock surface or drain slowly after heavy rains.

Vegetation: The vegetation of High Elevation Mafic Glades is patchy and irregular in structure. Areas of lichen-covered bedrock, grassy herbaceous vegetation, shrub thickets, and stunted trees form a fine-scale mosaic. Lichens, *Cladonia* or *Cladina* spp., may dominate the more open areas. Plants typical of rock outcrops, such as *Hypericum gentianoides, Hydatica petiolaris, Campanula divaricata, Crocanthemum propinquum,* or *Hylotelephium telephioides,* occur sparsely in the shallowest soil accumulations. Somewhat deeper soil mats are dominated by *Schizachyrium scoparium,* which is generally the herb with the highest cover. Other herbs that are fairly abundant include *Coreopsis major, Danthonia compressa, Danthonia spicata, Ionactis linariifolius, Thalictrum revolutum, Avenella flexuosa,* and *Sibbaldia retusa*. Additional herbs may include *Pycnanthemum tenuifolium, Carex* spp., *Solidago nemoralis, Dichanthelium meridionale, Aletris farinosa, Pyrola americana,* and *Gaultheria procumbens*. Woody patches are dominated by thickets of *Rhododendron catawbiense, Kalmia latifolia,* or *Physocarpus opulifolius*. Other shrubs include *Vaccinium corymbosum, Vaccinium stamineum,* and *Vaccinium pallidum*. Stunted trees are often present with the shrubs. These include *Quercus alba, Quercus rubra, Quercus montana,* and *Amelanchier laevis*.

Range and Abundance: Ranked G1. Only three examples are known, two in North Carolina, one in Virginia.

Associations and Patterns: High Elevation Mafic Glades are small patch communities that, in the few known examples, are surrounded by oak forests.

Variation: Each of the few examples is different enough to recognize as a variant. Though the most abundant species are the same, there are substantial differences in the other plants present:
1. Bluff Mountain Variant is nearly flat and has extensive cover of *Cladonia/Cladina* lichens.
2. Mount Jefferson Variant is steeply sloping and has little lichen cover.

Dynamics: Next to nothing is known about the dynamics of High Elevation Mafic Glades. Their open structure appears to be maintained by shallow soil and perhaps by periodic drought, but occasional fire may affect them. Though not well documented, there is some suggestion that at least one example has increased in woody cover in recent decades.

Comments: This community was originally defined as unique to Bluff Mountain. The type has been merged with two other high elevation amphibolite glades, at Mountain Jefferson and at Buffalo Mountain in Virginia. The Bluff Mountain glade remains distinctive in being flat, which allows moisture to sit on the rock and enables the site to support *Cladonia* lichens which are scarce or absent on the other examples. The Bluff Mountain and Mount Jefferson communities are distinctive enough to recognize as variants.

Rare species:
Vascular plants: *Crocanthemum bicknellii, Crocanthemum propinquum, Gentianopsis crinita, Lilium philadelphicum, Phlox subulata,* and *Spiranthes ochroleuca*.
Nonvascular plants: *Cladonia psoromica*.

References: